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Creative industries

Heterogeneity and connection with regional
firm entry

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Summary

Creative industries are nowadays central in many policies to stimulate the economic development of cities, regions and advanced capitalist economies in general. This paper contributes to the creative industries literature in two respects. First, we empirically explore if high shares of creative industries in regions go together with one particular aspect of regional economic development, namely firm entry rates. Drawing on Dutch trade register data over a six-year period, it is concluded that at the level of municipalities there is indeed a connection between the share of creative industries and firm entry, even after controlling for the sizes of municipalities, and no matter if creative industries are defined broadly or narrowly. Second, the paper analyses if firms in creative industries are heterogeneous in terms of business processes and their contribution to regional firm entry. Drawing on previous work four creative domains are identified: arts, media and entertainment, creative business services and, at the periphery, knowledge intensive business services. After analysing survey data of 4,746 Dutch SMEs, we find that firms across these domains are distinct in their use of the surveyed business practices: innovation, strategy and marketing, and human resources practices. Especially knowledge intensive services firms are deviant. For the connection with firm entry rates, it appears that high shares of firms in the arts and knowledge intensive business services are significantly connected with regional firm entry rates, while media and entertainment and creative business services remain insignificant. Implications for practitioners and future research are discussed.

Keywords: creative industries, business processes, innovation, heterogeneity, economic development, firm entry.

1 Introduction

Creativity is believed to be a key element in stimulating economic growth in cities, regions and advanced capitalist economies in general. Creativity might also be particularly useful in knowledge-based economies, where creativity is required to convert scientific and technological knowledge into market value. Research into the significance of creativity increased greatly with the work of Richard Florida (2002a). His creative class focuses on the presence of people in creative professions. A large creative class leads to a social climate with a high acceptance of minority points of view, and improves the attractiveness of a region as a place for highly educated people to live. These factors make an area more attractive for innovative firms and facilitate the innovativeness of organizations. As a consequence a better economic growth is anticipated. Florida and colleagues (Florida 2002b; Lee, Florida & Acs, 2004) published several articles to demonstrate these propositions.

Mainly due to Florida's work, policy makers nowadays have much attention for the presence of creative people and firms in their regions. The extent to which cities and regions accommodate creative people and firms is believed to be a major antecedent of future economic success. Especially at the level of municipalities and provinces, policy makers have embraced this school of thought to develop policies to attract and develop creative firms and people in creative professions. In the Netherlands, examples include the cities of Amsterdam, Rotterdam, Leiden and Eindhoven (Rutten, Manshanden, Muskens & Koops, 2004; Metz, 2005). At the country level, policy makers have more recently begun to develop policies oriented towards creativity. One example is the Dutch Innovation Platform, a thinkthank of politicians, policy makers, entrepreneurs and business representatives, which has declared creative industries as one of its key areas to stimulate innovation (Bekkers & Van Tilburg, 2004). Another example is so-called Culture and Economy Bill developed by the Dutch ministries of education and economic affairs. It proposes new policy initiatives oriented towards creative industries (Raes & Hofstede, 2005).

One caveat is that policy makers often assume that creative industries are beneficial while solid empirical evidence is still scarce. Studies that have replicated Florida's empirical findings in other contexts, i.e. countries outside the United States, are still few (Boschma & Fritsch, 2007). Another caveat is that creative professions and industries are often treated homogeneous, as if for example the presence of artists, architects or rather game developers in IT service industries have similar impacts on economic performance. As a consequence, policy makers refer to Florida to legitimate a plethora of policy interventions oriented to various industries, including visual arts, IT services, design, media firms, etc (Metz, 2005).

The purpose of this paper is twofold. First, we compare creative and non-creative industries in a context outside the United States. Previous work on the impact of creative industries has been done mainly in US cities, but more research in other contexts is recommended (Levine, 2004; Braaksma, De Jong & Stam, 2005). More specifically, we will analyse the relationship between regional shares of creative industries and firm entry rates. Second, we analyse if firms in creative

industries are heterogeneous in terms of their business processes and contributions to the economic development of regions. In section 2, drawing on the current literature we distinguish four creative domains: arts, media and entertainment (M&E), creative business services (CBS) and knowledge intensive business services (KIBS). We will elaborate on why we expect firms in these domains to be heterogeneous in terms of business processes and impact on economic outcomes. Next, section 3 analyses survey data of 4,746 Dutch SMEs to empirically investigate the heterogeneity of business processes of firms in the four domains. Section 4 continues with an analysis of the impact of creative industries on firm level entry rates. This is done at the level of 457 Dutch municipalities using data from the Dutch trade register. The paper ends with section 5 with a discussion of our findings and suggestions for further research.

2 The nature of creative industries

Definition and classification

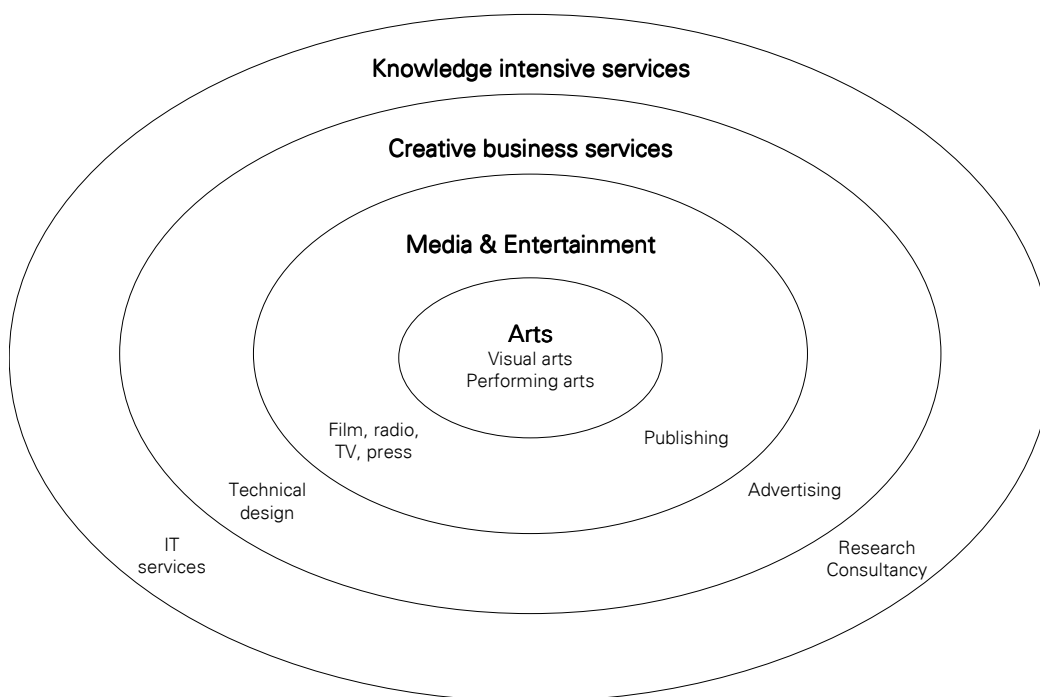
One of the first definitions of creative industries was established in the UK by the Creative Industries Task Force of the Department for Culture, Media and Sport (DCMS, 1998). Creative industries were defined as 'those activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property'. Caves (2000, p. 1) defines creative industries as 'industries that supply goods and services that we broadly associate with cultural, artistic, or simply entertainment value. They include book and magazine publishing, the visual arts (painting and sculpture), the performing arts (theatre, opera, concerts, dance), sound recordings, cinema and TV films, even fashion and toys and games'. A more recent study in the Netherlands (Rutten *et al.*, 2004) defines creative industries as those sectors in which goods and services are produced that are the result of creative labor. Content and symbolic value are important elements in this definition. In that respect, creative industries play an important role in the development and maintenance of lifestyles and cultural identities in society. The creative industries essentially supply informational media content that requires 'artistic creativity' as a quintessential knowledge-based and labour-intensive input (Handke, 2007). The cultural products they supply serve aesthetic, broadly educational or entertainment purposes rather than any immediate 'technical' function (Throsby, 2001, p. 4).

Although Florida's (2002a) creative class focuses on creative individuals, in the current study we use data at the level of firms in creative industries. A problem for any empirical analyses is that data on the level of individuals are difficult to obtain. As an alternative, many empirical studies focus on creative industries rather than people in specific professions (Caves, 2000; Turok, 2003; Gibson & Kong, 2005; Jayne, 2005). It is easier to analyse these creative industries as such data can be retrieved from secondary databases (that usually focus on industries rather than professions).

In the past years many theorists asked themselves what group of industries best reflects Florida's (2002a) creative class. The arts domain and media and entertainment (M&E) industries should, without any doubt, belong to the group as the nature of the work in these industries clearly reflects Florida's (2002a) core of super creative professions. This group consists of professionals for which creativity is a must, for example in architecture and design, education, arts, music and entertainment. A classification by Rutten *et al.* (2004) also includes creative business services (consisting of architects, commercial and interior designers, etc), in addition to the arts and the media and publishing industries. As this classification also captures a large part of Florida's creative professionals, we adopted it for the present study. Using similar reasoning a plea can be made to also include knowledge-intensive business services like consultancy and software firms. This can however be criticised because the nature of work in these industries is not necessarily creative. The creative content of consultancy and IT services is open to discussion because they do not necessarily produce goods or services with content and symbols that are meaningful for users (Manshanden, Raspe & Rutten, 2004; Rutten *et al.*, 2004). Basically, creative industries can be

schematised as a series of expanding concentric circles as represented in figure 1 (Jacobs, 2005).

figure 1 Classification of creative industries



The proposed classification entails four creative domains. At the core we find the arts domain, consisting of both visual and performing arts (artists, theatre companies, etc). There is no doubt that these are at the heart of the creative industries. Also at the core we find media and entertainment firms (e.g. photographers, broadcasters, journalists, publishing houses). These two domains also reflect Caves' (2000) definition. Next, creative business services (CBS) such as technical designers and advertising firms are considered to be another creative domain. These firms employ many creative professionals with jobs of a clearly creative nature (e.g. designing a house, creating an advertising campaign). Besides, other recent studies have also regarded advertising and design as a part of the creative industries (e.g. Grabher, 2002). In the periphery of figure 1 we find knowledge intensive business services (KIBS) for which, as indicated above, the creative content can be discussed.

Any demarcation of creative industries is, of course, somewhat arbitrary. This is immediately clear from previous estimates of the share of creative industries within the population of private firms. In the Netherlands, Braaksma *et al.* (2005) found that, depending on one's definition, creative industries comprise between 1.7% (just the arts domain) and 19% of the business population (including knowledge intensive business services). Given previous classifications and debates we anticipate that figure 1 gives a broad definition of creative industries. To account for potential criticism that KIBS might be misclassified, our empirical exercises presented hereafter are done in such a way that the consequences of including KIBS can be judged. Annex II in this paper lists relevant NACE-codes for the four domains used for our empirical exercises to be discussed later.

Potential heterogeneity

Previous work suggests that creative firms probably can not be treated as a homogenous group. Rutten *et al.* (2004) discuss differences between firms in the arts, media and entertainment and creative business services with regard to their economies of scale, sensitivity to business cycle fluctuations, sources of financial capital (credit and/or subsidies), opportunities in innovation, and managerial constraints. Likewise, the Dutch consultancy organization Syntens (2005), a specialist in giving advice to entrepreneurs on innovation topics, has identified similar differences, also for KIBS. Drawing on this work table 1 summarizes distinctive features of the four domains. A disclaimer is that this characterisation is only tentative; it is based on observations in the Netherlands and might not apply to other countries (see Izushi & Aoyama, 2006; Lorenzen, 2007).

table 1 Features of creative firms in four domains

<i>Feature</i>	<i>Arts</i>	<i>M&E</i>	<i>CBS</i>	<i>KIBS</i>
Dominant ideology	Artistic Autonomous Fundamental creativity Non-commercial	Popular Market focus Joint production and authorship	Customer focus Functionality of products Applied creativity	Customer focus Repertory of services Combination of sources
Share of subsidies in total revenues	Very high	Partially	Small	Small
Main customers	Governments	Private consumers	Large businesses	Large businesses
Production features	Small-scale Labour-intensive Both individual and collective production User does not influence output	Complex, large-scale Users of IT Capital-intensive Open culture, much cooperation	Small-scale Labour-intensive Influence of business cycles Flexible assignments of employees	Small-scale Application of knowledge Labour-intensive Influence of business cycles
Output	Unique products or small series	Standardised	Tailor made	Tailor made within specific knowledge domain
Source of innovation for non-creative industries	Hardly ever	Occasionally	Frequently	Very often

In the arts domain, artistic performance is valued much more than commercial performance. This domain is very dependent on subsidies. Dutch arts firms are usually very much oriented towards their own supplies: a piece of work should satisfy the creator's artistic standards, and customers should not interfere with this process, but just consume. The Dutch media domain is very dynamic, with many new entrants and collaborations and, with the exception of the public broadcasting organizations and parts of the movies industry, the market mechanism dominates here. Creative business services work on a commercial base; they offer tailor-made solutions to their customers. Firms in architecture or technical or commercial design typically operate in business-to-business environments in which customers should be satisfied. Their activities are very innovative, either directly or by enabling innovation by their clients. Knowledge intensive business are a bit similar, but one major distinction is that the application of knowledge is an essential feature of their business models.

The features in table 1 imply that firms in four domains differ in terms of their dominant ideology, dependence on subsidies, types of customers, modes of production, nature of outputs, and contributions to other firms' innovation proc-

esses. This suggests that creative firms are dissimilar in their organization of business processes, and possibly also in their contribution to economic development. Florida himself for example regards creativity to be connected with innovation opportunities which in turn contribute to growth (Florida, 2002a). For the Netherlands, there are also empirical figures which suggest differences between the four domains (see table 2).

table 2 Development and structure of creative firms in four domains

<i>Feature</i>	<i>Arts</i>	<i>Domain M&E</i>	<i>CBS</i>	<i>KIBS</i>	<i>Creative industries</i>	<i>All industries</i>
Average change (Δ no. of firms in two-year periods):						
- 1994-1996	6.8%	6.8%	10.2%	12.5%	9.6%	4.2%
- 1996-1998	5.5%	3.6%	9.1%	13.2%	8.8%	5.9%
- 1998-2000	5.0%	2.4%	7.1%	12.9%	8.0%	0.3%
- 2000-2002	4.7%	1.3%	-2.4%	5.0%	1.9%	-2.7%
- 2002-2004	3.1%	-3.9%	-3.3%	-2.7%	-1.8%	-1.2%
Number of firms in 2004:	18,100	8,300	30,500	39,500	96,400	642,900
- no employees	63.6%	65.9%	68.5%	73.8%	69.5%	53.6%
- 1-9 employees	33.3%	27.6%	25.6%	22.1%	25.8%	37.6%
- 10-99 employees	2.9%	5.5%	5.6%	3.8%	4.3%	8.1%
- ≥ 100 employees	0.3%	0.9%	0.3%	0.3%	0.4%	0.7%
Employment in 2004 (* 1,000 persons):	67.0	63.9	161.6	219.1	511.6	5,541.2
- ≥ 12 hour per week	49.3	57.4	147.5	200.7	454.9	
- < 12 hour per week	17.7	6.5	14.1	18.4	56.7	

Source: Braaksma et al. (2005).

In a descriptive study in the Netherlands that was done by Braaksma and colleagues (2005) it became evident that the number of firms in creative industries has grown enormously in the last decade. However, the creative industries were not immune to a recession at the beginning of the 21st century that had a severe impact on the Dutch economy. Creative industries faced a net loss in terms of numbers of firms in the 2002-2004 period. One exception was the arts domain, which contains basically organisations depending on public funding and which can, as a consequence, operate pretty much independent of business cycle dynamics. In contradiction, during the favorable conditions of between 1994 and 2000 creative business services and KIBS were able to grow at faster pace than firms in the arts and media and entertainment domains.

The table also shows that in 2004 creative industries in the Netherlands consisted of 56,900 firms; about 9% of the Dutch business population. The majority of these businesses are self-employed entrepreneurs. Creative industries are dominated by relatively small-scale activities, most likely because (firm-internal) economies of scale are hard to achieve in their creative activities, and because their work is usually labour-intensive (Canoy, Nahuis & Waagmeester, 2005). Only 5% of the businesses in creative industries employ ten or more employees, compared to almost 9% of the Dutch business population in general (Braaksma et al., 2005).

The figures in table 2 also confirm some of the differences between the four domains mentioned above. One example is the relatively large share of part-time workers in the arts domain ($17.7/67.0 = 26\%$). It suggests that working in the arts domain often does not constitute the primary source of household income. The arts domain has a reputation of consisting of many entrepreneurs that are more oriented towards artistic than to business values (cf. Rutten et al. 2004).

In the other domains shares of part-timers are much lower. In the next sections we empirically explore our presuppositions that firms in creative industries differ in their use of business processes and contribution to economic development.

3 Heterogeneity of business processes

To explore the heterogeneity of business processes of firms within the four domains we analysed a database provided by EIM Business and Policy Research, a Dutch research institute with a focus on entrepreneurship and small firm dynamics. The database was compiled using a survey that measured how small and medium-sized enterprises (SMEs) organize their business processes. This Business Processes Survey (BPS) covered various topics, including innovation, strategy and marketing, and human resources management. The survey was done in June 2007. It was commissioned by the Dutch ministry of economic affairs because no other publicly funded data source recorded how SMEs organize their business processes.

Data

The BPS draws on telephone interviews rather than internet or pen-and-paper surveys. This is to obtain better response rates. In many industries respondents are hard to contact due to irregular working hours and general disinterest to participate in surveys. Respondents were those who were in charge of daily operations, usually the owner/director and otherwise the general manager. For any survey EIM tried to contact a respondent at least five times before he/she was marked as a non-respondent.

To analyse the business processes of firms we disposed of responses of 4,746 SMEs, defined as firms with at least one but no more than 100 employees. To arrive at this response initially 9,000 firms were contacted, a response rate of 53%. A total of 574 respondents were located in creative industries, while other respondents belonged to other industries including agriculture, manufacturing, construction, trade, hotels and restaurants, transport, financial services and other (non-creative) services. In table 3 it is shown how our data are distributed across type of industry and size class. Altogether we disposed of responses from 88 firms in the arts domain, 107 firms from media and entertainment, 152 from creative business services, and 227 from knowledge intensive business services. A comparison of the distribution of respondents and non-respondents by type of industry indicated that there was no non-response bias present. A χ^2 -test between the distributions revealed no significant differences at the 5% level ($p = 0.11$). For size classes a similar result was found: $p(\chi^2) = 0.61$.

table 3 Number of respondents across type of industry and size class

<i>Industry</i>	<i>NACE-codes</i>	<i>Size class</i>	
		<i>1-9 employees</i>	<i>10-100 employees</i>
Agriculture	1-5	217	115
Manufacturing	15-37 (excl. 22.1)	575	465
Construction	45	204	133
Retail, cars and wholesale trade	50-52	653	420
Hotels and restaurants	55	109	57
Transport	60-64	221	187
Financial services	65-67	85	76
Creative industries			
- Arts	See Annex I	50	38
- Media and entertainment	"	54	53
- Creative business services (CBS)	"	99	53
- Knowledge intensive business services (KIBS)	"	128	99
		331	243
Other services	70-74, 90-93 (excl.)	348	307

Industry	NACE-codes	Size class	
		1-9 em- ployees	10-100 employees
creative industries)			

As the commissioner of the survey had wanted to make comparisons between specific types of industries, the sample was disproportionally stratified. In the creative industries, compared to the general Dutch population of SMEs, arts firms are somewhat underrepresented at the expense of media and entertainment firms. Arts firms consist of 2.2% of the Dutch SME population, but in the sample they are only 1.9% (=88/4,746). Outside the creative domains similar differences are found, i.e. manufacturing and transport firms are overrepresented while trade firms and hotels and restaurants have a relatively low coverage. We did not expect this to compromise our findings, yet, we computed a weighing variable that accounted for industry and size class differences. This variable was computed in such a way that representative estimates were obtained for the population figures of the descriptives presented hereafter¹. For all analyses presented here we checked if our weighing variable had caused misinterpretations, i.e. all analyses were redone with unweighed data. As this provided very similar results, we here present the weighed results. Results of the unweighed analyses are available from the authors on request.

Indicators

Although the BPS was not specifically done for the current paper, some of its indicators enable an empirical test of similarities and differences between the creative domains. The survey covered various topics, including the innovative output and innovative inputs of firms, strategy and marketing, and some indicators for their use of human resources practices. See table 4.

table 4 Variables used in the analysis of business processes

Indicator	Description
Innovative output	
- Products new to the firm	Firm developed and introduced at least one product (good or service) new to the firm in the past three years (yes=1, no=0)
- Products new to the industry	Firm developed and introduced at least one product (good or service) new to the industry in the past three years (yes=1, no=0)
- Process innovations	Firm implemented at least one new or significantly improved process in the past three years (yes=1, no=0)
Innovative inputs	
- External networks	Firm uses external networks to exchange knowledge (yes=1, no=0)
- External co-operation	Firm co-operates with other parties to develop innovation (yes=1, no=0)
- Dedicated innovation workers	Firm has employees which are occupied with innovation as part of their daily work (yes=1, no=0)
- Development/research	Firm does any development- or research activities (yes=1, no=0)
Strategy and marketing	
- Documented strategy	Firm has a documented strategy or business plan (yes=1, no=0)
- Emphasis on innovation	Firm regards innovation as a key strategic objective (yes=1, no=0)
- Emphasis on marketing	Firm regards marketing as a key strategic objective (yes=1, no=0)
- Specialised marketing workers	Firm has employees which are occupied with marketing in their daily work (yes=1, no=0)
Human resources management	
- Profit sharing/bonuses	Firm uses profit sharing or bonuses as part of its reward system (yes=1, no=0)
- Shareholding/options	Firm uses options or shares as part of its reward system (yes=1,

¹ For this purpose we obtained recent population figures from the Dutch Chamber of Commerce trade register database (a database that registers basically all Dutch private firms).

-	Periodical reviews	no=0) Firm organizes periodical reviews to assess and record employees' performance (yes=1, no=0)
-	Training and education	Firm funds a program for employee training/education to raise their skills (yes=1, no=0)

All questions were relatively simple dichotomous indicators. We disposed of three innovation output indicators, all very similar to the ones in the OECD's (2005) Oslo Manual for the construction of innovation surveys. Innovative outputs were recorded by asking for (1) any new or significantly improved products, (2) products that were also new to the industry rather than just new to the firm, and (3) new or improved business processes in the past three years. One major difference, however, is that innovation was defined more broadly. The Community Innovation Survey defines innovation from a technological point of view: 'technological product and process innovations comprise implemented technologically new products and processes and significant technological improvements in products and processes' (OECD 2005, p. 31). The BPS employs a much broader definition; innovation is defined as all implemented products and processes which are new to the firm and the aim of which is to provide some kind of benefit (cf. King & Anderson 2002). This definition enables the BPS to cover a wider range of innovations in SMEs, and not just technological innovation.

For innovative inputs four indicators were available, including firms' use of external networks to exchange knowledge, partnerships to develop innovations, employment of specialised innovation workers, and involvement in any development- or research activities. The latter question was not limited to R&D, but could also include market research and testing activities. For strategy and marketing one indicator measured if firms had a documented strategy. Next, respondents were asked if they regarded innovation and marketing as key elements in their strategies (no matter if a strategy was documented or not). Another indicator recorded if firms were employing specialised marketing workers at the time of the survey. Finally, it was asked if firms used various human resources practices including profit sharing, option or share packages, periodical reviews and training and education programs.

Analysis and results

We set up a range of multivariate analysis of variance (Anova) models to test our presuppositions. Analysis of variance is used to uncover the effects of categorical independent variables on an interval dependent variable (Turner & Thayer, 2001). Our analysis consisted of two steps. We first tested for any significant differences between firms in creative and other industries. A range of Anova models was estimated using the indicators in table 4 as dependents, and a dichotomous variable identifying creative and non-creative firms as the independent variable. Next, using similar models we investigated whether any differences could be revealed between the four domains.

In each model we controlled for firm size. Previous studies have shown that larger firms tend to realise innovative output more often, are better at securing innovation resources (e.g. Vossen, 1998; Nootboom, 1994), and are more likely to formulate strategies and adopt human resources practices (e.g. Churchill & Lewis, 1983). We anticipated the prevalence of the surveyed business practices is better in larger firms, a suspicion that was confirmed by simple comparisons of means between small- and medium-sized firms (no output shown here). We used

the log transformed number of employees as a covariate, the reasoning being that one additional employee probably has a greater impact on the prevalence of business processes in smaller firms than in larger ones.

All analyses were done with the Unianova procedure in SPSS. Results for the comparisons of creative and other industries are presented in table 5. As one could argue that KIBS are not creative industries, the table actually presents two comparisons. On the left-hand side creative industries are defined broadly including KIBS (as visualised in figure 1). On the right-hand side KIBS are classified in the reference group.

table 5 Prevalence of business processes in creative and other industries¹

Indicator	Creative industries incl. KIBS (n=574)	Other industries (n=4,172)	F-value	Creative industries excl. KIBS (n=347)	Other industries (n=4,399)	F-value
Innovative output						
– Products new to the firm	50%	29%	100.4**	47%	31%	40.8**
– Products new to the industry	24%	14%	38.9**	19%	15%	3.8
– Process innovations	63%	53%	30.5**	64%	54%	21.4**
Innovative inputs						
– External networks	60%	40%	116.1**	53%	42%	20.1**
– External co-operation	58%	29%	218.6**	55%	31%	84.8**
– Dedicated innovation workers	60%	40%	121.3**	52%	42%	18.5**
– Development- or research activities	46%	24%	161.4**	38%	26%	33.1**
Strategy and marketing						
– Documented strategy	51%	39%	39.0**	45%	40%	5.0^
– Emphasis on innovation	64%	49%	16.1**	61%	50%	22.2**
– Emphasis on marketing	51%	51%	0.8	54%	51%	4.5^
– Specialised marketing workers	53%	38%	54.2**	48%	40%	7.9*
Human resources management						
– Profit sharing/bonuses	32%	22%	14.8**	32%	23%	8.2*
– Shareholding/options	6%	2%	16.0**	6%	3%	13.5**
– Periodical reviews	64%	58%	12.9**	62%	59%	2.8
– Training and education	51%	42%	17.4**	49%	43%	6.2^

¹ Log transformed firm size as covariate; ** $p < 0.001$, * $p < 0.01$, ^ $p < 0.05$.

F-values confirm that firms in the creative industries use the surveyed business practices more often than their non-creative counterparts. With the exception of strategic emphasis on marketing, all indicators are significantly different. As our models were specified to control for firm size, these differences seem to reflect true differences between both types of industries. Besides, when KIBS are considered to be not creative (right-hand side of table 5) most differences remain significant. Firms in creative industries innovate more often, pay more attention to strategic and marketing issues, and seem more advanced in their use of human resources practices. We also note that in the right-hand models F-values are somewhat smaller with lower significance levels. This implicitly suggests that KIBS are a deviant group of firms, a suspicion that is confirmed by our analyses presented hereafter.

We went on to investigate if any differences could be found between the four domains of the creative industries. See table 6. Again, two versions of the significance tests are presented. For the presented F-values, the left-hand column gives the significance tests for comparisons between the four domains. The right-hand column gives the results when only three creative domains are compared, i.e. KIBS are supposed to be no part of the creative industries.

table 6 Anova models of business processes between types of creative industries¹

<i>Indicator</i>	<i>Arts</i> (<i>n=88</i>)	<i>M&E</i> (<i>n=107</i>)	<i>CBS</i> (<i>n=152</i>)	<i>KIBS</i> (<i>n=227</i>)	<i>F-value</i> (<i>incl.</i> <i>KIBS</i>)	<i>F-value</i> (<i>excl.</i> <i>KIBS</i>)
Innovative output						
- Products new to the firm	56%	53%	39%	53%	4.1*	6.4*
- Products new to the industry	18%	30%	15%	31%	4.4*	3.6^
- Process innovations	62%	66%	64%	62%	0.9	0.8
Innovative inputs						
- External networks	48%	52%	56%	69%	4.8*	0.1
- External co-operation	62%	55%	51%	62%	1.6	2.9
- Dedicated innovation workers	49%	61%	50%	71%	6.4**	0.8
- Development- or research activities	38%	51%	34%	55%	5.6*	3.4^
Strategy and marketing						
- Documented strategy	44%	44%	47%	57%	2.9^	1.0
- Emphasis on innovation	56%	82%	56%	69%	5.2*	7.1*
- Emphasis on marketing	57%	65%	49%	48%	3.9*	3.4^
- Specialised marketing workers	38%	61%	50%	60%	4.2*	2.4
Human resources management						
- Profit sharing/bonuses	18%	31%	40%	33%	0.8	0.4
- Shareholding/options	14%	1%	4%	7%	4.4*	5.2*
- Periodical reviews	46%	64%	71%	67%	0.4	0.5
- Training and education	40%	49%	54%	53%	0.6	0.4

¹ Log transformed firm size as covariate; ** $p < 0.001$, * $p < 0.01$, ^ $p < 0.05$.

The table shows more subtle differences between the four domains. For innovative output, firms in the KIBS and media and entertainment domains more often realise product innovations. For innovative inputs KIBS firms tend to score above the average while especially CBS firms seem to lag behind. For strategy and marketing, we again find media and entertainment and KIBS firms in the lead. These differences remain significant even after controlling for the size of firms. For the identified human resources practices it appears that firms in CBS and KIBS are using these more often. Now it is the arts domain lagging behind.

After controlling for the size of firms, we find significant differences for 10 of the 15 business process indicators. This confirms our presupposition that across the four creative domains, firms are not homogeneous in how they organize their business processes. We also note that when KIBS are considered to be not creative, the differences between the three remaining domains are less pronounced and more difficult to interpret. Only six indicators remain significant (table 6). Apparently, KIBS firms are most deviant in terms of their business processes. In the next section we explore if similar differences can be found with regard to the connection between creative industries and regional firm entry rates.

4 Contribution to regional firm entry

A widely recognized proposition that is eagerly adopted by policy makers is that clustering of creative organisations generates spin offs for the whole local economy (Scott, 2000). Clusters of creative firms are proposed to generate knowledge spillovers which stimulate new business development and growth in other industries (cf. Porter, 1990). This implies that regions with high shares of creative firms are anticipated to perform better in terms of economic development. One of the main causal relationships that Florida (2002a) proposed is that creative regions realise better rates of firm entry, i.e. more start-ups are seen, and more existing firms tend to move into such regions. Florida's main reasoning is that creativity goes together with high levels of tolerance, talent and technology start-ups, all factors which are good for new firm entry. This in turn will generate better economic performance.

Empirical work in the Netherlands suggests that the relationship between creative industries and economic outcome variables such as regional employment growth, is mainly indirect (Marlet & Poort, 2005). Only for Amsterdam, the biggest Dutch agglomeration, a direct correlation between creative industries and employment growth can be established (p. 34). In general, results suggest that the connection is indirect: the presence of creative industries makes a region an attractive residence for those employees and businesses which are most needed to boost local economic growth. In this section we build on this previous work with an empirical exercise in which we connect regional shares of creative industries with the entry rates of new firms. Firm entry is an intermediate variable that is supposedly connected with better economic outcomes.

Data

For our empirical exercise we used a large dataset provided by the Dutch Chambers of Commerce. This non-profit organisation manages the Dutch national trade register (see www.kvk.nl/english/traderegister/default.asp). All private organisations in the Netherlands are obliged to subscribe to this register. We obtained a database with full inventories of all private firms which had been registered in the years 2001-2006. Except for the names of organisations the database contained unique firm identification numbers, four-digit postal codes to identify firms' location in the country, firm classification (NACE) codes and years of registration. Using the NACE codes in Annex II we classified each firm as being a member of the arts, media and entertainment, CBS or KIBS domain. Most firms of course were no part of the creative industries, but were classified as non-creative.

All analyses were done at the level of municipalities, a level of analysis providing sufficient detail to enable reliable estimates. To aggregate our data to this level we merged the database for each year with a postal code-to-municipality table. In this year there were 457 municipalities in the Netherlands¹. We based the aggregation on the situation in 2006. By using just a single mapping moment for

¹ We note that higher levels of analysis were not suitable. The Netherlands has only 12 provinces and 40 so-called Corop regions (which are rough combinations of municipalities).

the whole time period we implicitly corrected for municipal re-classifications in previous years. This prevented biases in our measures of firm entry (see hereafter).

Variables

We investigated the empirical relationship between the regional share of firms in creative industries (relative to the total number of firms) and the regional entry rate of new firms. An overview of our variables is provided in table 7.

table 7 Variables used in the analysis of regional firm entry

Variable	Description
N_m^{tot}	Average annual entry rate of firms in municipality m , in time period 2002 - 2006
S_m^{ci}	Average share of firms in creative industries (including KIBS) in municipality m , in the time period 2001 - 2006
S_m^{cin}	Average share of firms in creative industries (excluding KIBS, i.e. creative industries narrowly defined) in municipality m , in the time period 2001 - 2006
S_m^{art}	Average share of firms in arts industries in municipality m , in the time period 2001 - 2006
$S_m^{m&e}$	Average share of firms in media and entertainment industries in municipality m , in the time period 2001 - 2006
S_m^{cbs}	Average share of firms in creative business services in municipality m , in the time period 2001 - 2006
S_m^{kibs}	Average share of firms in knowledge intensive business services in municipality m , in the time period 2001 - 2006
Q_m	Average number of (thousands of) inhabitants in municipality m , in the time period 2001 - 2006.

Our measure N_m^{tot} indicates firm entry. It draws on the number of new firms in a particular municipality and year, i.e. we regarded any firm as 'new' if it was registered in one municipality in a specific year but had not been there in the previous year. In so doing the measure entails both start-up firms and existing firms which have moved from one municipality to another. It is computed as...

$$N_m^{tot} = \left(\sqrt[5]{\frac{N_{2001,m}^{tot} + \sum_{t=2002}^{2006} \Delta N_{t,m}^{tot}}{N_{2001,m}^{tot}}} - 1 \right) \times 100\%$$

...where $N_{2001,m}^{tot}$ is the total number of private firms registered in municipality m in 2001, , and $\Delta N_{t,m}^{tot}$ is the number of private firms entering municipality m in year t .

The variable S_m^{ci} represents of the average share of firms in creative industries, using the broad definition of creative industries including knowledge intensive business services. It is computed as...

$$S_m^{ci} = \frac{\frac{1}{6} \sum_{t=2001}^{2006} N_{t,m}^{ci}}{\frac{1}{6} \sum_{t=2001}^{2006} N_{t,m}^{tot}} \times 100\%$$

...where $N_{t,m}^{ci}$ is the number of firms in creative industries registered, and $N_{t,m}^{tot}$ is the total number of private firms in municipality m and year t .

Similarly, we defined S_m^{cin} as the average share of firms in creative industries using the narrow definition (excluding KIBS). Moreover, S_m^{art} , $S_m^{m\&e}$, S_m^{cbs} and S_m^{kibs} represented the average shares in 2001-2006 of respectively the arts domain, media and entertainment, creative business services and knowledge intensive business services. For any municipality $S_m^{ci} = S_m^{art} + S_m^{m\&e} + S_m^{cbs} + S_m^{kibs}$ and $S_m^{cin} = S_m^{art} + S_m^{m\&e} + S_m^{cbs}$.

Our analyses controlled for the influence of the size of municipalities. We anticipated that firms are more willing to establish themselves in urban areas rather than rural ones. Urban areas benefits from better supplies of skilled labor, infrastructures, etc (Jacobs, 1961; 1969). Therefore we used Q_m as a control variable, reflecting the average number of (thousands of) inhabitants during 2001-2006. For each municipality m this variable was computed as...

$$Q_m = \frac{1}{6} \sum_{t=2001}^{2006} Q_{t,m}$$

Analysis and results

Based on values for 457 municipalities in the Netherlands, descriptive statistics are shown in table 8. We notice that in the years 2002-2006 there were major differences between municipalities in the entry rates of new firms, varying from 8.7% to 21.5%. We stress that the shares presented in table 8 cannot be compared with the descriptives shown in table 2. Knowledge intensive business services are for example the biggest domain (see table 2), but as these firms are unevenly spread across Dutch municipalities, the average share of KIBS at the municipal level (see table 8) is relatively low.

table 8 Descriptive statistics at the municipality level (n=457)

Variable	Mean	SD	Min	Max	Pearson correlations							
					N_m^{tot}	S_m^{ci}	S_m^{cin}	S_m^{art}	$S_m^{m\&e}$	S_m^{cbs}	S_m^{kibs}	
N_m^{tot}	13.5%	2.1%	8.7%	21.5%								
S_m^{ci}	7.3%	2.5%	1.8%	20.1%	0.45**							
S_m^{cin}	5.7%	1.9%	1.6%	15.9%	0.36**	0.94**						
S_m^{art}	1.6%	0.7%	0.2%	5.7%	0.19**	0.43**	0.51**					
$S_m^{m\&e}$	0.7%	1.3%	0.0%	8.9%	0.25**	0.62**	0.69**	0.30**				
S_m^{cbs}	3.4%	2.5%	0.0%	9.2%	0.29**	0.80**	0.81**	0.05	0.29**			
S_m^{kibs}	1.6%	1.0%	0.0%	7.6%	0.46**	0.76**	0.49**	0.13*	0.27**	0.50**		
$Q_m(1)$	35.7	57.8	1.0	742.6	0.41**	0.32**	0.28**	0.15*	0.23**	0.20**	0.28**	

(1) Correlations for Q_m are computed with log transformed values, ** $p < 0.001$, * $p < 0.01$.

In many municipalities creative industries are only a small part of the total number of private firms. There are however a number of bigger cities with high shares of creative firms. The share can reach maximum values of 15% up to 20%, contingent on how creative industries are demarcated.

In table 8 we notice significant correlations between the entry rate of new firms and the share of firms in creative industries, no matter how the latter variable is defined (strong and significant correlation between N_m^{tot} and either S_m^{ci} or S_m^{cin}). But we also see positive significant correlations with the size of municipalities. Because of the skewness to the right of the municipality size distribution, we used log transformed values of Q_m in the correlation (and subsequent) analysis. The significant correlation of 0.52 ($p < 0.001$) confirms that indeed large cities show higher entry rates than smaller ones.

The bottom row of table 8 also shows that large municipalities have higher shares of creative industries. So within the private sector, firms in creative industries are more attracted to larger cities than their non-creative counterparts, a finding that was previously proposed by Hall (1998) and Florida (2005). At first sight it seems remarkable that relatively small sectors such as creative industries are strongly related to firm entry, but we have to take into account the possibility that the municipality size effect dominates all other effects, i.e. the effect of creative industries could be an artifact as it may be the result of 'attractiveness of larger cities'.

To empirically explore if and how creative industries and domains contribute to firm entry, we set up a range of regression models. Each model was specified with the firm entry rate N_m^{tot} as the dependent variable, log transformed municipality size as a control variable, and subsets of the other indicators as independents. We estimated five regression models:

- The first model entered log transformed Q_m as a control variable. This gives a baseline model that all subsequent models should exceed in terms of significance and explained variance.
- The second model added S_m^{ci} to the equation to investigate if higher shares of creative industries go together with better firm entry rates.
- In the third model, we added the shares of the four creative domains (S_m^{art} , $S_m^{m\&e}$, S_m^{cbs} and S_m^{kibs}) seperately to test for significant differences between these domains.
- The fourth model was an alternative to the second model, now entering the share of creative industries according to the narrow definition of creative industries (S_m^{cin}).
- The fifth model was an alternative to the third model. It entered the three remaining creative domains seperately (S_m^{art} , $S_m^{m\&e}$ and S_m^{cbs}). Models (4) and (5) allowed us to assess the consequences of leaving out knowledge intensive business services.

We remark that the analyses were cross-sectional. There was no need to apply panel techniques since differences in the independent variables are particularly relevant in the cross-sectional dimension (i.e. between municipalities), and relatively constant in the time dimension (shares of creative industries are relatively constant over the years). Moreover, we eliminated variation of growth of the number of firms due to general business cycle and other time specific effects by applying average growth figures over five years.

All analyses were done with OLS regression. See table 9. In order to obtain comparable parameter estimates we standardised all variables, i.e. standardised effect parameters are shown.

table 9 OLS regression models of firm entry rates at the municipality level (n = 457)

Variables	(1)	(2)	Model (3)	(4)	(5)
Standardised effect parameters:					
Log Q_m	0.52**	0.52**	0.52**	0.52**	0.52**
S_m^{ci}		0.29**			
S_m^{cin}				0.23**	
S_m^{art}			0.16**		0.18**
$S_m^{m\&e}$			0.03		0.06
S_m^{cbs}			0.01		0.13^
S_m^{kibs}			0.25**		
Model fit:					
R^2	0.27	0.38	0.42	0.35	0.36

Variables	<i>Model</i>				
	(1)	(2)	(3)	(4)	(5)
ΔR^2		0.11	0.15	0.08	0.09

** $p < 0.001$, ^ $p < 0.05$.

Model (1) again shows that large municipalities have higher entry rates than their smaller counterparts. Due to standardisation the estimated parameter of this model is exactly the correlation coefficient between the entry rate and municipality size ($\beta = 0.52$). It is highly significant and reflects a strong relationship (R^2 indicates 27% explained variance).

Model (2) confirms that creative industries indeed go together with better entry rates of firms. After the municipality size effect is controlled for, an additional significant effect parameter of the share of creative industries (broadly defined) emerges ($\beta = 0.29$). It creates an additional explained variance of 11%.

In model (3) we see that the effect of the creative industries can be mainly assigned to firms in the arts and KIBS domains. For these two domains we find significant and positive effect parameters, while the coefficients for media and entertainment and creative business services are insignificant. This finding supports our presupposition that firms in various domains have different impacts on regional economic development.

Model (4) demonstrates that even when creative industries are defined in a narrow sense, the correlation with firm entry rates remains. The standardised effect parameter is now 0.23 but still significant at $p < 0.001$, while entering the share of creative industries indicator S_m^{cin} adds 8% to the explained variance. This implies that when KIBS firms are considered to be non-creative, the relationship with firm entry is slightly lower, but still positive.

Finally, model (5) enters the three domains of arts, media and entertainment and creative business services separately. For the arts domain the result is comparable with model (3), but for creative business services the effect parameter is now marginally significant, implying that the relationship between CBS and firm entry diminishes when the KIBS domain enters into the equation.

Our analysis included with a number of checks on robustness. First, the municipality level could be too narrow if the prevalence of creative industries in neighbouring areas also affect firm entry. The Netherlands is a crowded county: cities are characterised by small geographical distances, making it well possible to do business with firms in adjacent cities (Marlet & Van Woerkens, 2005). We therefore repeated our analyses with shares of creative industries defined at the two-digit postal code level. This provides a rougher indicator which basically assumes that regional firm entry depends on the share of creative industries in adjacent municipalities. Second, we experimented with an alternative dependent variable that also reflecting firm exits and not just entries of new firms. Both analyses provided nearly identical results; their outputs can be obtained from the authors on request.

5 Discussion

This paper aimed to contribute to the creative industries literature in two respects. First, we investigated the relationship between creative industries and regional firm entry rates. After analysing data at the level of 457 Dutch municipalities, we found a positive and significant connection between the two. Second, we analysed if firms in various creative industries are heterogeneous in terms of their business processes and contribution to firm entry. Drawing on survey data of 4,746 Dutch SMEs, it is confirmed that firms in creative industries have different business processes, i.e. they are more innovative, pay attention to strategy and marketing more often, and are more likely to use human resources practices than their counterparts from other industries. More important is that we also found empirical evidence for our presupposition that firms in various creative domains differ in their use of specific business processes. We demarcated the creative industries to consist of four domains: arts, media and entertainment, creative business services, and, in the periphery of creative industries, knowledge intensive business services. For the use of innovation practices, strategy, marketing and human resources practices, significant differences between the four domains were found. It appeared that especially knowledge intensive business services (KIBS) were deviant, i.e. they seem even more 'professional' in their use of the surveyed practices. When KIBS firms were discarded from the analyses significant differences remained, but these were less pronounced. Finally, in our analysis of regional firm entry rates we also found distinctions between the four domains, i.e. municipalities with higher shares of creative firms in the arts and KIBS domains had better firm entry rates, while media and entertainment and creative business services were not (or at most marginally) significant.

For policy makers the implications of our findings seem at first sight straightforward. As we discussed in the introduction section, policy makers have embraced the creative industries as a driver of economic development. Numerous policies have been developed and implemented to attract new creative firms and to support the development of such firms. Our comparisons of creative and non-creative industries with survey data, but also our analysis of firm entries with the trade register data, suggests that such policies make sense. Firms in creative industries are indeed more innovative. They pay more attention to strategic and marketing issues and seem to be more progressive in their use of human resources practices. Besides, at the municipal level there is a positive connection between the share of creative industries and the average annual entry rate of new firms. This suggests that at least some positive economic effects can be anticipated.

It is tempting to conclude that policy interventions to attract and develop creative industries will pay off. Policy makers should however be aware of potential differences between various creative domains. In practice policy makers use the creativity literature, especially Florida (2002a), to legitimate a broad range of policy interventions. These can aim for firms as diverse as visual arts, gaming, interior design or photography. In this paper we have argued that there are very distinctive domains within the creative industries that differ with respect to their dominant ideology, output markets, production features, employment growth,

sensitivity to business cycles, innovativeness, etc. For a selection of business practices and the connection with regional firm entry, we also found empirical evidence. Policy makers should therefore not treat the creative industries as a homogeneous group, but should rather be aware that a positive impact on economic development might be obtained from only a subset of creative industries.

Given our findings one might tentatively conclude that firms in arts and knowledge intensive business services are relatively important objects for policy development. We are however aware that it is too early for such recommendations. Our analysis of firm entry rates is just one in a broad range of mechanisms linking creativity with economic performance. One alternative explanation would for example be that firms in creative industries contribute to the innovativeness of organizations in other domains, which in turn boosts regional economic performance. For creative business services (consisting of architects, technical and commercial designers, etc) such a contribution is not hard to imagine. The innovativeness connection could also be indirect, e.g. high shares of firms in creative industries might induce knowledge spillovers (cf. Porter, 1990). Future research should investigate much more thoroughly the similarities and differences between various creative domains, as well as their consequences for economic performance. We end this paper by suggesting that such future work would be much more valuable if researchers manage to collect primary data. Most previous work necessarily stuck to secondary sources; the current paper was no exception to this. Primary data would enable tests of much more sophisticated models.

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Annex II Classification of creative industries

<i>Domain</i>	<i>Industries</i>	<i>NACE-codes</i>	<i>Description</i>
Arts	Visual arts	92.31	Literacy and arts creation and interpretation
		74.81	Photographic activities
		92.5	Library, archives, museums and other cultural activities
	Performing arts	92.32	Operation of arts facilities
		92.34	Other entertainment activities n.e.c.
Media & Entertainment	Media	92.11	Motion picture and video production
		92.12	Motion picture and video distribution
		92.13	Motion picture projection
		92.20	Radio and television activities
		92.40	News agency activities
	Publishing	22.11	Book publishing
		22.12	Newspaper publishing
		22.13	Journal and periodical publishing
		22.14	Publishing sound recordings
		22.15	Other types of publishing
Creative Business Services	Technical design	74.20	Architectural and engineering activities and related technical consultancy
	Advertising and Non-technical Design	74.40	Advertising
		74.87	Interior and fashion design
Knowledge-intensive services	IT software services	72.21	Publishing of software
		72.22	Other software consultancy
	Commercial R&D services	73.1	Research and development on natural sciences and engineering
		73.2	Research and development on social sciences and humanities
	Consultancy services	74.13	Market research
		74.14	Business and management consultancy

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